

What is claimed is:

1. A data relay server for accessing a database server  
via a communication network in accordance with a query  
for a database received from a client computer,  
5 comprising:

first means for encrypting retrieval condition  
data included in the query received from the client  
computer;

second means for producing a query message  
10 destined for said database server, including the  
retrieval condition encrypted by said first means;

third means for transmitting the query message  
produced by said second means to said communication  
network;

15 fourth means for receiving via said communication  
network, as a retrieval result, data matched with said  
encrypted retrieval condition retrieved by matching  
the encrypted data from said database server; and

fifth means for producing a response message for  
20 the client computer on the basis of the retrieval result  
received by said fourth means and transferring the  
response message to the requester client.

2. The data relay server according to claim 1,  
25 wherein the query received from said client

computer designates at least one data item to be replied  
as a retrieval result, and

the query message produced by said second means  
includes, as data items to be replied as a retrieval  
5 result, not only the data item designated by the query  
from said client computer but also a data item  
corresponding to said encrypted retrieval condition.

3. The data relay server according to claim 1, wherein  
10 the query message produced by said second means includes  
identification information of an encryption program  
for encrypting said retrieval condition.

4. The data relay server according to claim 1, wherein  
15 the query message produced by said second means includes  
an encryption program for encrypting said retrieval  
condition.

5. The data relay server according to claim 2, wherein  
20 said fifth means has means for re-searching the  
retrieval result received by said fourth means with  
the retrieval condition included in the query received  
from said client computer, and said response message  
for said client computer indicates a result of said  
25 re-search.

6. The data relay server according to claim 1, further comprising

sixth means for converting at least two queries  
5 received from different client computers into a linked query and supplying the linked query to said first means, and

said fifth means re-searches the retrieval results for said linked query received from said  
10 database server for data matched with the retrieval condition indicated by the original query issued by each of said client computers and produces a response message to each client computer.

15 7. The data relay server according to claim 2, further comprising

sixth means for converting at least two queries received from different client computers into a linked query and supplying the linked query to said first means,  
20 and

said fifth means re-searches the retrieval results for said linked query received from said database server for data matched with the retrieval condition indicated by the original query issued by  
25 each of said client computers and produces a response

0904130.033001  
FOOESD"05BT4660

message to each client computer.

8. The data relay server according to claim 1, further comprising

5 sixth means for converting one query received from a client computer into at least two distributive queries and supplying the distributive queries to said first means,

10 wherein said second means converts one of the distributive queries including the retrieval condition encrypted by said first means into a query message for said database server, and converts the other distributive query to a query message for a pre-designated another data relay server, and

15 said fifth means re-searches a retrieval result for the one of distributive queries received from said database server and a retrieval result for the other distributive query received from said another data relay server for data matched with the retrieval condition indicated by the original query issued by  
20 said client computer, and produces a response message for the client computer.

9. The data relay server according to claim 2, further  
25 comprising



said database management system comprising:

means for transmitting a response message including the retrieved service information to the source of said query message.

said retrieving means encrypts a specific data item read out from said database by an encryption program designated by said identification information.

12. A database access method comprising the steps of:  
 encrypting at least a part of a retrieval condition  
 designated by a client;

encrypting, in said server, a specific data item, which is designated by said retrieval condition and read out from said database, and retrieving service information matched with said retrieval condition by encrypted data matching; and

13. The database access method according to claim 12, further comprising a step of re-searching, by the source of said query message, the retrieval result received from said server in accordance with the retrieval condition designated by said client,

wherein the retrieval result received by the server includes a data item corresponding to said encrypted retrieval condition.